



A black EFJohnson medical device, likely a ventilator or respiratory monitor, is shown. It features a large, flexible microphone on top. The front panel includes a red emergency stop button, a power on/off switch, a volume knob, and a select knob. The EFJohnson logo is visible on the front and the microphone. The device is connected to a control panel with various buttons and knobs, including a large red 'Transmit' button and a green 'LMC' button.



Warranty PlusSM ... A Customer Service Program for EFJohnson Radio Products

The *Warranty PlusSM* program extends the warranty of your EF Johnson radio products for a period of one, two, or three years after the standard warranty expires. Similar to an insurance policy, Warranty Plus coverage must be purchased up front. End-users interested in the *Warranty Plus* program will be required to buy within 120 days of radio purchase.

The *Warranty Plus* Customer Advantage

- Additional warranty for a low monthly rate. The full cost of *Warranty Plus* coverage is payable at time of radio purchase (or within 120 days).
- *Warranty Plus* is a factory backed, extended warranty program. There are no second or third party warrantors. *Warranty Plus* customers deal strictly with EFJohnson or selected, authorized dealers.
- No deductibles or limits on the number of covered repairs.
- The initial *Warranty Plus* invoice is the only service invoice the customer will handle for three, four, or five years on covered repairs, thereby reducing both his purchasing and accounts payable costs.
- At today's rising costs of labor and major parts assemblies, one service charge could easily equal two or three times the original cost of *Warranty Plus* extended warranty coverage.
- Equipment users do not have to live with minor problems as they wait for problems to become major enough to justify a service request.
- Reduced downtime as users may immediately request service without concern for purchase orders or budgetary constraints.

Warranty Plus Price Schedule

	<u>Extended Coverage Period</u>	<u>Part Number</u>	<u>Dlr/Fed Price</u>	<u>List</u>
Mobile Radios	1 Year	299-0045-016	\$20.00	\$ 31.00
	2 Years	299-0045-012	\$35.00	\$ 55.00
	3 Years	299-0045-028	\$75.00	\$117.00
Handheld Radios	1 Year	299-0045-017	\$23.00	\$ 36.00
	2 Years	299-0045-013	\$35.00	\$ 55.00
	3 Years	299-0045-029	\$78.00	\$121.00
Repeater	1 Year	299-0045-060	\$286.00	\$440.00
	2 Years	299-0045-061	\$546.00	\$840.00
	3 Years	299-0045-062	\$812.00	\$1,250.00

All prices are per unit on a one-time buy basis.

Please contact EFJohnson Order Administration at 800-328-3911 x1 if you have any questions.



Our Mission—Your Safety

Two-Way Mobile Radio Bid Specification Instructions

The following document is a master bid specification for the EFJohnson 5300 and 53SL mobile radio. This document should be tailored to meet the customers' specific needs by deleting sections not required by the bid.

The following sections should be tailored.

Features

- Protocols (try to keep in all the protocols because we offer more than most other competitors besides Motorola)
- Encryption, select the required types

RF Specifications

- Delete the columns not required

Key competitive specifications we should try to keep in the spec.

General Specification

- Electronic tilt display
- LCD instead of VFD (our LCD is more readable in direct sunlight)

Features

- 512 channel/talkgroup is available standard on the Motorola XTL5000, XTL2500 will have the ability to add 512 channel/talkgroups as a priced option
- DES, DES-OFB or AES encryption. XTL2500 offers only one encryption algorithm with only a single encryption key. For multiple algorithms (DES-OFB and ASE), Motorola is forced to quote the XTL5000.
- Multiple encryption keys is standard with 53SL and 5300, for Motorola it is a priced option.
- MDC1200 signaling not available on the ICOM and M/A Com at this time.
- SMARTNET / SmartZone – we are the only licensed vendor. This is not available to other manufacturers.

Other

- 3 year extended warranty available (Motorola has capability to offer 3 year warranty but this is not standard).

Two-Way Mobile Radio Specification

General Specifications:	Compliance Yes/No
Mechanical	
On/Off Volume rotary switch	
Selector rotary switch	
Emergency/home button, color coded for easy visibility	
Minimum 5 programmable front mounted buttons	
Minimum one line, 10 character display with electronic tilt to adjust viewing angle	
5 Watt internal speaker	
Optional 12 Watt external speaker	
Environmental	
Mil spec C, D, E, &F. Vender shall define method and procedure met for the following categories	
- Rain/Blow rain	
- Salt Fog	
- Dust and Sand	
- Vibration	
- Shock	

Features:	Compliance Yes/No
General	
Supports up to 512 channels/talk groups	
Operational Modes and Protocols shall be field flash upgradeable	
Surveillance mode feature	
Operational Modes:	
Supports 25/12.5 kHz analog operation	
Supports 12.5 kHz P25 CAI digital operation	
Protocols	
Analog Conventional operation	
- Priority Channel scan	
- MDC 1200 PTT ID and Emergency	
- Programmable single tone encode	
- DTMF PTT ID and Emergency	
P25 Digital Conventional operation	
- 8 Status, 16 message	
- Call Alert encode and decode	
Trunking	
Motorola SMARTNET II	
Motorola SmartZone	
Motorola OmniLink	
P25 Trunking	
Encryption	
DES, Motorola 12 KBS	
DES-OFB, P25 standard	
AES, P25 standard	
16 encryption keys	
OTAR, P25 standard conventional	
OTAR, P25 standard trunked	

Radio must meet the following RF specifications at a minimum.

RF Specification	VHF	VHF	UHF	700/800 MHz	Compliance Yes/No
General					
Frequency Range (maximum frequency separation)	136-174 MHz	146-174 MHz	380-470 MHz	762-806 MHz 806-870 MHz	
Channel Spacing	12.5KHz 25 KHz	12.5KHz 25 KHz	12.5KHz 25 KHz	12.5KHz 25 KHz	
Receiver					
Sensitivity (-119 dBm)					
- Analog mode 12 dB SINAD	0.25uV	0.25uV	0.25uV	0.25uV	
- Digital P25 mode, 5% BER	0.25uV	0.25uV	0.25uV	0.25uV	
Adjacent Channel Rejection	-75 dB	-75 dB	-75 dB	-75 dB	
Spurious Response Rejection	-75 dB	-75 dB	-75 dB	-75 dB	
Intermodulation	-75 db	-75 db	-75 db	-73 db	
Audio Output Power	12 W	12 W	12 W	12 W	
Audio Distortion	<3%	<3%	<3%	<3%	
Transmitter					
RF Power Output Watts	50	100	40	30 (700) 35 (800)	
Spurious Emissions	-75 dBc	-75 dBc	-75 dBc	-75 dBc	
FM Hum & Noise					
- 25 KHz channel	-45 dB	-45 dB	-45 dB	-40 dB	
-12.5 KHz channel	-39 dB	-39 dB	-39 dB	-34 dB	
Audio Distortion	2%	2%	2%	2%	
Audio Response	+1,-3 dB	+1,-3 dB	+1,-3 dB	+1,-3 dB	
Modulation					
- 25/30 KHz channel	5.0 kHz	5.0 kHz	5.0 kHz	5.0 kHz	
- 12.5 KHz channel	2.5 kHz	2.5 kHz	2.5 kHz	2.5 kHz	
Frequency stability (-30° to +60° C)	±1.5ppm	±1.5ppm	±1.5ppm	±1.5ppm	

Other	Compliance Yes/No
Optional Configurations:	
Remote mount configuration with 17' remote cable	
Dash mount with 2 nd control head, 17' remote cable	
Remount with 2 nd control head, 17' remote cable	
Hand-Held Controller with 17' remote cable	
Optional Accessories	
DTMF microphone	
Handheld controller field upgrade	
Siren Controller kit	
Programming	
PC programmable	
PC Tune software, ability to tune radio	
Warranty	
Standard one year parts and labor warranty	
Optional 1,2,3 year extended warranty	

Mobiles

5300^{Series} Mobile Radio

700/800 VHF UHF

The 5300 Series mobile radio is a very capable and flexible tool designed for demanding public safety communications applications. The ability to seamlessly interoperate with analog and digital, wideband and narrowband, and a wide variety of trunking protocols – all installed simultaneously in the same radio – makes this mobile ideal for migrating critical systems to the latest open standards. This flexibility helps protect your investment in the future as well as maximizing interoperability among most installed systems.



Project 25 Compliance

Supports Project 25 CAI (Common Air Interface), P25 Trunked and Conventional system protocols, and P25 Over-The-Air Rekeying (OTAR).



Industry's Only SMARTNET® II / SmartZone® Licensee

Industry's only supplier licensed to support both analog and digital SMARTNET II and SmartZone trunking protocols.



Numerous Encryption Protocols

Supports industry standard encryption AES, DES-OFB, and DES.



EFJohnson is a leading provider of Project 25 compliant two-way radios and communication systems for law enforcement, fire fighters, EMS, and military.

More Key Features and Benefits

Robust and Flexible

- 512 Channels / Talkgroups
- P25 Digital and Analog
- Supported Protocols Installed Simultaneously
- DES, DES-OFB, & AES Encryption
- P25 Conventional & Trunked OTAR
- Supports Key Elements of MDC1200
- Compatible with Motorola Astro®
- Supports Motorola System v6.5

Trunking

- SMARTNET II / SmartZone
- P25

Data and Control Interfaces

- Supports P25 Conventional IP Packet Data
- Supports GPS AVL Data
- Radio Control Available to 3rd Party Developers

Simplified Feature Updates and Option Selection

- Flexible Programming
- PC Configure™ Software Tool

Multiple Configuration Options

- Dash-Mount
- Trunk-Mount
- 2 Control Heads
- Hand-Held Controller
- Internal or External Speaker
- Fixed Control Stations
- Siren Option
- Motorcycle Configuration

5300^{Series} Mobile Radio

Typical Performance Specifications Subject to Change

GENERAL	700/800 MHz 30/35 W	VHF 50W	VHF 100W	UHF R1 40 W
Frequency Range (band splits)	762–806 MHz	136–174 MHz	146–174 MHz	380–470 MHz
Channel Spacing	Analog 25, 12.5 kHz P25 Digital 12.5 kHz	25, 12.5 kHz 12.5 kHz	25, 12.5 kHz 12.5 kHz	25, 12.5 kHz 12.5 kHz
Maximum Frequency Separation	Full Bandsplit			
Display	Backlit LCD. 10 alpha-numeric characters plus Zone, Ch, & Status. Electronically adjustable viewing angle			
Power Supply				
Nominal Voltage (negative ground)	13.6 VDC			
Operating Supply Voltage Range	10.9 ~ 16.3 VDC			
Standby Current (back-light off)	700 mA			
Receive Current at Rated Audio Power	2.7 A			
Current at Max Rated Transmit Power	15 A	14.5 A	30 A	12 A

Temperature Range				
Operating	-30°C to +60°C			
Storage	-40°C to +85°C			
Nominal Dimensions (W x H x D)	5.3 x 18.2 x 21.1 cm (2.1 x 7.2 x 8.3 in)	5.3 x 18.2 x 21.1 cm (2.1 x 7.2 x 8.3 in)	5.3 x 18.2 x 35.5 cm (2.1 x 7.2 x 14 in)	5.3 x 18.2 x 21.1 cm (2.1 x 7.2 x 8.3 in)
exclusive of mounting, cables, knobs				
Nominal Weight	2.3 kg (5.5 lb)	2.3 kg (5.5 lb)	3.9 kg (8.5 lb)	2.3 kg (5.5 lb)
FCC ID	ATH2425371	ATH2425311	ATH2425312	ATH2425331
Industry Canada	Pending	IC: 933B-2425311	Pending	IC: 933B-2425331

TRANSMITTER				
RF Output Power (variable)	10~30 W (762~806 MHz) 1~35 W (806~870 MHz)	10 W ~ 50 W	50 W ~ 100 W	10 W ~ 40 W
Transmitter Frequency Range(s)	762~776, 792~806, 806~825, 851~870 MHz	136 ~ 174 MHz	146 ~174 MHz	380 ~ 470 MHz
Maximum Frequency Separation	Full Band Split			
Frequency Accuracy* (-30°C ~ +60°C, +25°C ref.)	±1.5 ppm	±1.5 ppm	±1.5 ppm	±1.5 ppm
Modulation Limiting				
25 kHz channels	±5 kHz			
12.5 kHz channels	±2.5 kHz			
Modulation Fidelity (C4FM, 12.5 KHz Digital)	<5%			
Spurious Emissions	-75 dBc			
Audio				
Analog Freq. Resp. (TIA 6dB/octave pre-emphasis)	+1, -3 dB			
FM Hum and Noise Ratio (25 kHz Analog)	40 dB	45 dB	45 dB	45 dB
FM Hum and Noise Ratio (12.5 kHz Analog)	34 dB	39 dB	39 dB	39 dB
Distortion	2%			
FCC Emission Designators	8K10F1D, 8K10F1E, 16K0F3E, 11K0F3E	8K10F1D, 8K10F1E, 11K0F3E, 16K0F3E		

RECEIVER				
Receiver Frequency Ranges	762~776, 851~870 MHz	136~174 MHz	146~174 MHz	380~470 MHz
Maximum Frequency Separation	Full Band Split			
Sensitivity				
Analog Mode: 12 dB SINAD, 25 & 12.5 kHz)	0.25 uV (-119 dBm)	0.35 uV (-116 dBm)	0.35 uV (-116 dBm)	0.35 uV (-116 dBm)
Digital Mode: (5% BER)**	0.25 uV (-119 dBm)	0.35 uV (-116 dBm)	0.35 uV (-116 dBm)	0.35 uV (-116 dBm)
Adjacent Channel Rejection (analog 25 kHz)	75 dB			
Intermodulation	73 dB	75 dB	75 dB	75 dB
Spurious Response Rejection	75 dB	75 dB	75 dB	75 dB
Audio				
Analog Freq. Resp. (TIA 6dB/octave pre-emphasis)	+1, -3 dB			
Output Power (3 Ω load)	12 W rms			
Distortion (1 kHz, 60% Deviation)	<3%			

*FCC Part 90.213

**Measured in digital mode per TIA/EIA 102. CAAA and TIA 102.CAAB Standards.

ENVIRONMENTAL SPECIFICATIONS

Environment	Mil Spec 810C	Mil Spec 810D	Mil Spec 810E	Mil Spec 810F
	M P	M P	M P	M P
Low Pressure	500.1 I	500.2 II	500.3 II	500.4 II
High Temp.	501.1 I	501.2 I, II	501.3 I, II	501.4 I, II
Low Temp.	502.1 I	502.2 I, II	502.3 I, II	502.4 I, II
Temp. Shock	503.1 I	503.2 I	503.3 I	503.4 I
Solar Radiation	505.1 I	505.2 I	505.3 I	505.4 I
Rain/Blown Rain	506.1 I, II	506.2 II	506.3 I, II	506.4 I, II
Humidity	507.1 II	507.2 II, III	507.3 II, III	
Salt Fog	509.1 I	509.2 I	509.3 I	
Dust and Sand	510.1 I	510.2 I	510.3 I	510.4 I
Vibration	514.2 VII, VIII	514.3 I(8)	514.4 I(8)	514.5 I(24)
Shock	516.2 I, II, V	516.3 I, IV, VI	516.4 I, IV, VI	516.5 I, IV, VI

M=Method P=Procedure

ENCRYPTION OPTIONS

Supported Encryption Algorithms	DES, DES-OFB, AES
Encryption Algorithm Capacity	4 Maximum
Encryption Keys/Radio	16 Common Key Reference (CKR) 16 Physical Identifier (PID)
Encryption Frame Re-sync Interval	P25 CAI 360 msec
Encryption Keying	External Key Loader, OTAR
Synchronization	CFB – Cipher Feedback OFB – Output Feedback
Vector Generator	National Institute of Standards and Technology (NIST) approved random number generator
Encryption Type	Digital
Key Erasure	Keyboard Command
Code Key Initialization	Internal pseudorandom generator
Standards	FIPS 46-3, FIPS 81, FIPS 140-2, FIPS 197

ACCESSORIES

- Antennas
- Keypad Microphones
- Desk Microphones
- Hand-Held Controller
- Remote Control Heads
- External Speakers
- Power Supplies
- Control Station Components
- Tone Remotes
- Encryption Key Management Tools
- Radio Programming Tools
- Mounting Hardware
- Siren

53SL Series Mobile Radio

700/800 VHF UHF

The 53SL Series mobile radio is a very capable and flexible tool designed for demanding public safety communications applications. The ability to seamlessly interoperate with analog and digital, wideband and narrowband, and a wide variety of trunking protocols – all installed simultaneously in the same radio – makes this mobile ideal for migrating critical systems to the latest open standards. This flexibility helps protect your investment in the future as well as maximizing interoperability among most installed systems.



Project 25 Compliance

Supports Project 25 CAI (Common Air Interface), P25 Trunked and Conventional system protocols, and P25 Over-The-Air Rekeying (OTAR).



Industry's Only SMARTNET® II / SmartZone® Licensee

Industry's only supplier licensed to support both analog and digital SMARTNET II and SmartZone trunking protocols.



Encryption

Supports DES and industry standard P25 digital DES-OFB.



EFJohnson is a leading provider of Project 25 compliant two-way radios and communication systems for law enforcement, fire fighters, EMS, and military.

More Key Features and Benefits

Robust and Flexible

- 512 Channels / Talkgroups
- P25 Digital and Analog
- Supported Protocols Installed Simultaneously
- DES & DES-OFB Encryption
- P25 Conventional & Trunked OTAR
- Supports Key Elements of MDC1200
- Compatible with Motorola Astro®
- Supports Motorola System v6.5

Trunking

- SMARTNET II / SmartZone
- P25

Data and Control Interfaces

- Supports P25 Conventional IP Packet Data
- Supports GPS AVL Data
- Radio Control Available to 3rd Party Developers

Simplified Feature Updates and Option Selection

- Flexible Programming
- PC Configure™ Software Tool

Multiple Configuration Options

- Dash-Mount
- Trunk-Mount
- 2 Control Heads
- Hand-Held Controller
- Internal or External Speaker
- Fixed Control Stations
- Siren Option

53SL^{Series} Mobile Radio

Typical Performance Specifications Subject to Change

GENERAL	700/800 MHz 30/35 W	VHF 50W	VHF 100W	UHF R1 40 W
Frequency Range (band splits)	762~870 MHz	136~174 MHz	146~174 MHz	380~470 MHz
Channel Spacing				
Analog	25, 12.5 kHz			
P25 Digital	12.5 kHz			
Maximum Frequency Separation	Full Band Split			
Display	Backlit LCD. 10 alpha-numeric characters plus Zone, Ch, & Status. Electronically adjustable viewing angle			
Power Supply				
Nominal Voltage (negative ground)	13.6 VDC			
Operating Supply Voltage Range	10.9 ~ 16.3 VDC			
Standby Current (back-light off)	700 mA			
Receive Current at Rated Audio Power	2.7 A			
Current at Max Rated Transmit Power	15 A	14.5 A	30 A	12 A
Temperature Range				
Operating	-30°C to +60°C			
Storage	-40°C to +85°C			
Nominal Dimensions (W x H x D)	5.3 x 18.2 x 21.1 cm	5.3 x 18.2 x 21.1 cm	5.3 x 18.2 x 35.5 cm	5.3 x 18.2 x 21.1 cm
exclusive of mounting, cables, knobs	(2.1 x 7.2 x 8.3 in)	(2.1 x 7.2 x 8.3 in)	(2.1 x 7.2 x 14 in)	(2.1 x 7.2 x 8.3 in)
Nominal Weight	2.3 kg (5.5 lb)	2.3 kg (5.5 lb)	3.9 kg (8.5 lb)	2.3 kg (5.5 lb)
FCC ID	ATH2425371	ATH2425311	ATH2425312	ATH2425331
Industry Canada	IC: 933B-2425371	IC: 933B-2425311	IC: 933B-2425312	IC: 933B-2425331

TRANSMITTER				
RF Output Power (variable)	10~30 W (762~806 MHz) 10~35 W (806~870 MHz)	10 W ~ 50 W	50 W ~ 100 W	10 W ~ 40 W
Transmitter Frequency Range(s)	762~776, 792~806, 806~825, 851~870 MHz	136 ~ 174 MHz	146 ~174 MHz	380 ~ 470 MHz
Maximum Frequency Separation	Full Band Split			
Frequency Accuracy* (-30°C ~ +60°C, +25°C ref.)	±1.5 ppm			
Modulation Limiting				
25 kHz channels	±5 kHz			
12.5 kHz channels	±2.5 kHz			
Modulation Fidelity (C4FM, 12.5 KHz Digital)	<5%			
Spurious Emissions	-75 dBc			
Audio				
Analog Freq. Resp. (TIA 6dB/octave pre-emphasis)	+1, -3 dB			
FM Hum and Noise Ratio (25 kHz Analog)	40 dB	45 dB	45 dB	45 dB
FM Hum and Noise Ratio (12.5 kHz Analog)	34 dB	39 dB	39 dB	39 dB
Distortion	2%			
FCC Emission Designators	8K10F1D, 8K10F1E, 11K0F3E, 16K0F3E	8K10F1D, 8K10F1E, 11K0F3E, 16K0F3E		

RECEIVER				
Receiver Frequency Ranges	762~776, 851~870 MHz	136~174 MHz	146~174 MHz	380~470 MHz
Maximum Frequency Separation	Full Band Split			
Sensitivity				
Analog Mode: 12 dB SINAD (25 & 12.5 kHz)	0.25 uV (-119 dBm)	0.35 uV (-116 dBm)	0.35 uV (-116 dBm)	0.35 uV (-116 dBm)
Digital Mode: (5% BER)**	0.25 uV (-119 dBm)	0.35 uV (-116 dBm)	0.35 uV (-116 dBm)	0.35 uV (-116 dBm)
Adjacent Channel Rejection (analog 25 kHz)	75 dB			
Intermodulation	73 dB	75 dB	75 dB	75 dB
Spurious Response Rejection	75 dB	75 dB	75 dB	75 dB
Audio				
Analog Freq. Resp. (TIA 6dB/octave pre-emphasis)	+1, -3 dB			
Output Power (3 Ω load)	12 W rms			
Distortion (1 kHz, 60% Deviation)	<3%			

*FCC Part 90.213

**Measured in digital mode per TIA/EIA 102. CAAA and TIA 102.CAAB Standards.

ENVIRONMENTAL SPECIFICATIONS

Environment	Mil Spec 810C		Mil Spec 810D		Mil Spec 810E		Mil Spec 810F	
	M	P	M	P	M	P	M	P
Low Pressure	500.1	I	500.2	II	500.3	II	500.4	II
High Temp.	501.1	I	501.2	I, II	501.3	I, II	501.4	I, II
Low Temp.	502.1	I	502.2	I, II	502.3	I, II	502.4	I, II
Temp. Shock	503.1	I	503.2	I	503.3	I	503.4	I
Solar Radiation	505.1	I	505.2	I	505.3	I	505.4	I
Rain/Blown Rain	506.1	I, II	506.2	II	506.3	I, II	506.4	I, II
Humidity	507.1	II	507.2	II, III	507.3	II, III		
Salt Fog	509.1	I	509.2	I	509.3	I		
Dust and Sand	510.1	I	510.2	I	510.3	I	510.4	I
Vibration	514.2	VII, VIII	514.3	I(8)	514.4	I(8)	514.5	I(24)
Shock	516.2	I, II, V	516.3	I, IV, VI	516.4	I, IV, VI	516.5	I, IV, VI

M=Method P=Procedure

ENCRYPTION OPTIONS

Supported Encryption Algorithms	DES, DES-OFB
Encryption Algorithm Capacity	4 Maximum
Encryption Keys/Radio	16 Common Key Reference (CKR) 16 Physical Identifier (PID)
Encryption Frame Re-sync Interval	P25 CAI 360 msec
Encryption Keying	External Key Loader, OTAR
Synchronization	CFB – Cipher Feedback OFB – Output Feedback
Vector Generator	National Institute of Standards and Technology (NIST) approved random number generator
Encryption Type	Digital
Key Erasure	Keyboard Command
Code Key Initialization	Internal pseudorandom generator

ACCESSORIES

- Antennas
- Keypad Microphones
- Desk Microphones
- Hand-Held Controller
- Remote Control Heads
- External Speakers
- Power Supplies
- Control Station Components
- Tone Remotes
- Encryption Key Management Tools
- Radio Programming Tools
- Mounting Hardware
- Siren

EFJohnson®

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www.efjohnson.com

Ascend™ Mobile Radio

700/800 MHz

The Ascend™ mobile radio is designed specifically to provide EFJohnson Multi-Net® customers a robust upgrade path to the industry-standard Project 25 Common Air Interface and beyond. This radio provides seamless interoperability among Multi-Net, P25 conventional and trunked, SMARTNET® II / SmartZone® trunked, and conventional analog systems. EFJohnson's Ascend series is the only communications radio available on the market supporting all of these protocols in the same radio. Further, all of these protocols can be installed simultaneously. Once programmed, switching systems is as simple as changing channels.



Project 25 Compliance

Supports Project 25 CAI (Common Air Interface), P25 Trunked and Conventional system protocols, and P25 Over-The-Air Rekeying (OTAR) functionality.



Industry's Only SMARTNET® II / SmartZone® Licensee

Industry's only supplier licensed to support both analog and digital SMARTNET II and SmartZone trunking protocols.



EFJohnson is a leading provider of Project 25 compliant two-way radios and communication systems for law enforcement, fire fighters, EMS, and military.

More Key Features and Benefits

Robust and Flexible

- 512 Channels / Talkgroups
- P25 Digital and Analog
- Supported Protocols Installed Simultaneously
- P25 Conventional & Trunked OTAR
- Supports Key Elements of MDC1200
- Compatible with Motorola Astro®
- Supports Motorola System v6.5

Trunking

- EFJohnson's Multi-Net
- SMARTNET II / SmartZone
- P25

Data and Control Interfaces

- Supports P25 Conventional IP Packet Data
- Supports GPS AVL Data
- Radio Control Available to 3rd Party Developers

Simplified Feature Updates and Option Selection

- Flexible Programming
- PC Configure™ Software Tool

Multiple Configuration Options

- Dash-Mount
- Trunk-Mount
- 2 Control Heads
- Hand-Held Controller
- Internal or External Speaker
- Fixed Control Stations
- Siren Option
- Motorcycle Configuration

Ascend™ Mobile Radio

Typical Performance Specifications Subject to Change

GENERAL 700/800 MHz 30/35 W

Frequency Range (band splits) 762–806 MHz

Channel Spacing

Analog 25, 12.5 kHz

P25 Digital 12.5 kHz

Maximum Frequency Separation Full Bandsplit

Display Backlit LCD. 10 alpha-numeric characters plus Zone, Ch, & Status. Electronically adjustable viewing angle

Power Output

Nominal Voltage (negative ground) 13.6 VDC

Operating Supply Voltage Range 10.9 ~ 16.3 VDC

Standby Current (back-light off) 700 mA

Receive Current at Rated Audio Power 2.7 A

Current at Max Rated Transmit Power 15 A

Temperature Range

Operating -30°C to +60°C

Storage -40°C to +85°C

Nominal Dimensions (W x H x D) 5.3 x 18.2 x 21.1 cm

exclusive of mounting, cables, knobs (2.1 x 7.2 x 8.3 in)

Nominal Weight 2.3 kg (5.5 lb)

FCC ID ATH2425371

Industry Canada Pending

TRANSMITTER

RF Output Power (variable) 10–30 W (762–806 MHz)

10–35 W (806–870 MHz)

Transmitter Frequency Range 762–776, 792–806,

806–825, 851–870 MHz

Maximum Frequency Separation Full Band Split

Frequency Accuracy* ±1.5 ppm
(-30°C ~ +60°C, +25°C ref.)

Modulation Limiting

25 kHz channels ±5 kHz

12.5 kHz channels ±2.5 kHz

Modulation Fidelity <5%
(C4FM, 12.5 KHz Digital)

Spurious Emissions -75 dBc

Audio

Analog Freq. Resp. (TIA 6dB/octave pre-emphasis) +1, -3 dB

FM Hum and Noise Ratio (25 kHz Analog) 40 dB

FM Hum and Noise Ratio (12.5 kHz Analog) 34 dB

Distortion 2%

FCC Emission Designators 8K10F1D, 8K10F1E, 14K0F3E,
16K0F3E, 11KDF3E

RECEIVER

Receiver Frequency Ranges 762–776, 851–870 MHz

Maximum Frequency Separation Full Band Split

Sensitivity

Analog Mode: 12 dB SINAD, 25 & 12.5 kHz) 0.25 uV (-119 dBm)

Digital Mode: (5% BER)** 0.25 uV (-119 dBm)

Adjacent Channel Rejection

(analog 25 kHz) 75 dB

Intermodulation 73 dB

Spurious Response Rejection 75 dB

Audio

Analog Freq. Resp. (TIA 6dB/octave pre-emphasis) +1, -3 dB

Output Power (3 Ω load) 12 W rms

Distortion (1 kHz, 60% Deviation) <3%

*FCC Part 90.213

**Measured in digital mode per TIA/EIA 102. CAAA and TIA 102.CAAB Standards.

ENVIRONMENTAL SPECIFICATIONS

Environment	Mil Spec 810C		Mil Spec 810D		Mil Spec 810E		Mil Spec 810F	
	M	P	M	P	M	P	M	P
Low Pressure	500.1	I	500.2	II	500.3	II	500.4	II
High Temp.	501.1	I	501.2	I, II	501.3	I, II	501.4	I, II
Low Temp.	502.1	I	502.2	I, II	502.3	I, II	502.4	I, II
Temp. Shock	503.1	I	503.2	I	503.3	I	503.4	I
Solar Radiation	505.1	I	505.2	I	505.3	I	505.4	I
Rain/Blown Rain	506.1	I, II	506.2	II	506.3	I, II	506.4	I, II
Humidity	507.1	II	507.2	II, III	507.3	II, III		
Salt Fog	509.1	I	509.2	I	509.3	I		
Dust and Sand	510.1	I	510.2	I	510.3	I	510.4	I
Vibration	514.2	VII, VIII	514.3	I(8)	514.4	I(8)	514.5	I(24)
Shock	516.2	I, II, V	516.3	I, IV, VI	516.4	I, IV, VI	516.5	I, IV, VI

M=Method P=Procedure

ACCESSORIES

- Antennas
- Keypad Microphones
- Desk Microphones
- Hand-Held Controller
- Remote Control Heads
- External Speakers
- Power Supplies
- Control Station Components
- Tone Remotes
- Encryption Key Management Tools
- Radio Programming Tools
- Mounting Hardware
- Siren

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Form S556 3/05 (Supersedes 6/04) Printed in U.S.A. Specifications subject to change without notice.

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Mobile Radio Hand-Held Controller 700/800 VHF UHF

The Hand-Held Controller (HHC) is a full-featured, discreet, and convenient alternative to traditional EFJohnson® mobile radio control heads. Designed primarily for law enforcement, surveillance, and executive applications, the HHC provides full radio functionality in the palm of your hand. The HHC is available as a factory option or field-installed upgrade for any remote-control-head 5300 series or Ascend mobile for all frequency bands, power levels, and software options.



Features

- All display functions of the 5300 Series control head
- All six programmable function buttons of the 5300 Series control head
- Adjustable display and keypad backlighting (including "off")
- Multi-function LED indicator
- Volume up/down rocker control
- Channel/zone selection rocker control



EFJohnson is a leading provider of Project 25 compliant two-way radios and communication systems for law enforcement, fire fighters, EMS, and military.

Bonus Features Above and Beyond Fixed Control Heads

- Dedicated encryption on/off button (top — not shown)
- Numeric Keypad
- Highly flexible mounting locations for convenience or privacy
- HHC can be used anywhere with or without mounting
- Line-level transmit and receive audio via interface box
- Radio programming and encryption key loading via interface box
- Compatible with subscriber programming and encryption tools with adapter
- External speaker jack in interface box

Mobile Radio Hand-Held Controller

HANDHELD CONTROLLER CONTROLS

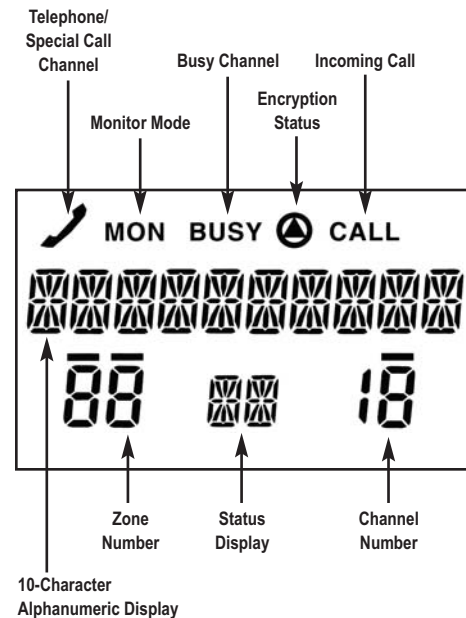


Handheld Controller shown with 5326 100-watt trunk-mount mobile and junction box. External speaker (PN 250-0151-005), also shown, is ordered separately.



HHC Kit 250-5300-101

LCD



ORDERING INFORMATION

To order with the mobile radio from the factory:

- Select "Remote-Mount Option" No. 5 at time of radio order (Does not include required external speaker.)
- 250-0151-005 5" Environmentally sealed speaker with plug compatible with HHC interface junction box. (Except for phone plug, this speaker is identical to the EFJ standard speaker, 250-0151-006, which has unterminated wires.)

To order as field upgrade:

- Ensure that existing mobile has connection for remote-control head (or has already been used with remote control head).
- 250-5300-101 Field installation HHC Kit includes HHC, interface junction box, 17' radio cable. (Does not include required external speaker.)
- 250-0151-005 5" Environmentally sealed speaker with plug compatible with HHC interface junction box. (Except for phone plug, this speaker is identical to the EFJ standard speaker, 250-0151-006, which has unterminated wires.)

Related Optional Accessories

- 597-2002-267 17' HHC to Radio cable. (Included in HHC Kit). Usually needed only for spares or re-installations
- 023-5300-140 Adapter required to connect radio programming kit cable to HHC interface junction box.

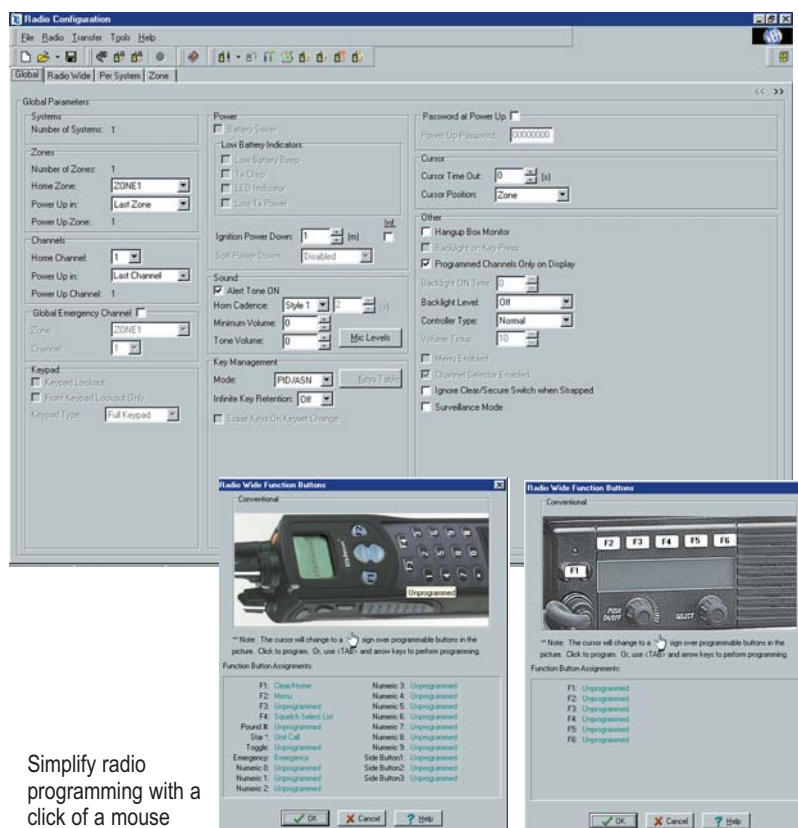
5100Series 5300Series Programming Software

EFJohnson's PC Configure™ software is the most user-friendly programming software for public safety and service radio users. Program all of your EFJohnson® mobile and portable radios quickly and easily with the same software package. With minimal setup time or training, PC Configure gives you the flexibility to program your EFJohnson® 5100 Series Portable and 5300 Series Mobile radios for any encryption or system type installed on the radio.

PC Configure is a Windows®-based application. With its intuitive and unique graphical display, PC Configure allows you to re-reflash radios much faster than any other radio programming software. PC Configure's "remember" function stores previously programmed parameters (such as software version or options) and recalls them for future use.



Manage encryption keys, channels, zones, and other vital radio functions – all from your PC



Simplify radio programming with a click of a mouse

EFJohnson is a leading provider of Project 25 compliant two-way radios and communication systems for law enforcement, fire fighters, EMS, and military.

More Key Features and Benefits

- Minimize your learning curve with an intuitive graphical interface
- Configure mobile and portable radios with a single software package
- Switch between radio and system parameters, and program zone and channel properties with the click of a mouse
- Program your radios in analog conventional, Multi-Net®, Project 25 conventional and trunking, and SMARTNET®/SmartZone®
- Use one template to program multiple radios – simply change unit IDs and download the file to each radio

Computer Requirements

800 MHz Pentium or greater
128 MB RAM
40 MB hard disk space
CD-ROM drive

The portability of the software lets you program your radios anywhere.



53SL Series Mobile Radio

EFJohnson®

Price List



APCO Project 25/SMARTNET®/SMARTZONE®

How to Make a Model String - Select Mobile and Options, Enter Numbers in these Boxes.

1	Mobile 4-Digit Model #	3	Additional Hardware #	6	Enter up to Four 2-Digit Software Control Options in Numerical Order. List only requested options.							
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2	Control Head Option #	4	Protocol #	5	System Options #							

Step 1 Select a Mobile Base Model, Either Dash or Remote-Mount Option



Dash-Mount Base Model, Includes Microphone and Cables

		List Price
5417	VHF 50W, 136-174 MHz	\$ 1,700
5425*	VHF, 100W, 146-174 MHz	2,060
5463	UHF R1, 40W, 380-470 MHz	1,840
5443*	UHF R2, 40W, 450-512 MHz	1,840
5477	700/800 MHz, 30W/35W, 762-870 MHz	1,700

Remote-Mount Base Model, Includes Microphone and Cables

5418	VHF, 50 W, 136-174 MHz	\$ 1,700
5426*	VHF, 100 W, 146-174 MHz	2,060
5464	UHF R1, 40W, 380-470 MHz	1,840
5444*	UHF R2, 40W, 450-512 MHz	1,840
5478	700/800 MHz 30W/35W, 762-870 MHz	1,700

Step 2 Select Control Head Option

Dash-Mount Options

1	Dash-Mount Control Head	\$ 80
4	Dash-Mount Control with Remote Control Head, factory installed, includes one remote control head, microphone, and normal bracket.	650

Remote-Mount Options

0	Remote Control Head, includes microphone	\$ 550
5	Handheld Controller, includes junction box and cabling. Requires remote speaker 250-0151-005, ordered separately.	750
6	Double Control Head, includes two remote control heads attached to the remote mount radio, two microphones, and two mounting brackets.	1,200

*Check for availability before ordering.

EFJohnson®

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Order Entry 1.800.328.3911
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Effective November 9, 2005.
Prices subject to change without notice.

Control Head Option #	Enter Mobile Base Radio Price in Box A	→ \$ <div style="border: 1px solid black; width: 100px; height: 20px; display: inline-block;"></div>
Base Mobile Radio #	Enter Control Head Price in Box B	→ \$ <div style="border: 1px solid black; width: 100px; height: 20px; display: inline-block;"></div>

Additional Hardware # Protocol # System Option # Software Control Option 2-digit #s